REMARKS

Claims 1-5, 10, 12-14, 16-17, and 21 have been amended to further clarify the patentable subject matter of the invention. Claims 1-21 remain in the case for reconsideration. Reconsideration is requested. No new subject matter has been added.

Claims 1, 2, 3, 12, 13, 14, and 21 are rejected under 35 USC 102(b) as being anticipated by Carme et al. (4,833,719). The Examiner states that Carme teaches an audio headset having a first ear phone having a microphone for converting voice signals into electrical transmit signals and a second ear piece having an ear phone for converting electrical receive signals into an audio output.

Claims 1 and 13 have been amended to specify a full duplex headset including a first ear piece having a microphone configured to pickup voice signals of a headset operator output from an ear canal and convert the voice sounds into electrical transmit signals and output the electrical transmit signals from the headset as an electrical representation of the voice signals of the headset operator. A second ear piece is specified as having an ear phone for converting electrical receive signals received from an external device coupled to the audio headset into audio output sounds and outputting the audio output sounds into the same or a different ear canal of the headset operator so that the headset operator can hear the audio output sounds.

Carme does not teach a full duplex headset. Carme also does not teach a first ear piece having a microphone that converts the voice sounds from a headset operator into electrical transmit signals that are output from the headset as an electrical representation of the headset operators voice signals. Carme also does teach a second ear piece containing an ear phone that converts electrical receive signals received from an external device coupled to the audio headset into audio output sounds and outputting the audio output sounds into the same or a different ear canal of the headset operator so that the headset operator can hear the audio output sounds.

Conversely, Carme discloses a combination speaker 6 and microphone 8 that are used for actively attenuating external originating noise keeping the external noise from reaching the eardrum of a headset operator. Col. 5, line 33-39. The purpose of the circuitry in Carme is to eliminate external noise, not to provide a two-way (full-duplex) talk and listen headset as specified in claims 1 and 13. Carme does not convert voice signals from the headset operator into a transmit signal that is output from the headset as specified in claims 1 and 13.

Carme also does not receive an external receive signal and convert the receive signal into audio signals that can be heard by the operator as specified in claims 1 and 13.

Claim 2 has been amended to include the limitation of an acoustical isolator comprising a piece of material extending inside the first earpiece and suspending the microphone inside the first ear piece. Claim 3 has been amended to include the limitation of the acoustical isolator being foam, paper, plastic, wood, or fiber material having sides extending against inside walls of the first earpiece and a center portion surrounding sides of the microphone.

There is no suggestion in Carme of any acoustical isolator that isolates a microphone from bone conduction as specified in claims 2 and 3.

For the reasons state above, claims 1, 2, 3, 12, 13, 14, and 21 are allowable under 35 USC 102(b) over Carme et al.

Claims 5, 6, 7, 16 and 17 are rejected under 35 USC 103(a) as being unpatentable over Carme et al. The Examiner states that Carme teaches a first wire coupled to a microphone and a second wire coupled to a earphone. Claim 5 has been amended to specify a first wire coupled from the microphone to a first ring connection and the second wire coupled from the earphone to a second tip connection. This wiring configuration enables two-way communication from the headset with telephony and other audio devices.

There is no suggestion in Carme of coupling a headset microphone to a ring connection and coupling a headset earphone to a tip connection.

For the reasons stated above, claims 5, 6, 7, 16 and 17 are allowable under 35 USC 103(a) over Carme et al.

Claims 4, 8, 9, 10, 15, 18, 19 and 20 are rejected under 35 USC 103(a) as being unpatentable over Carme et al. in view of Lazarus et al. (4,280,018).

Claims 4 and claim 21 have been amended to specify the first ear piece including only a single microphone and the first ear piece containing no other microphones or ear phones. Claims 4 and 21 also specify the second ear piece including only a single ear phone and the second ear piece not containing any other microphones or ear phones. Locating a separate ear phone and a separate microphone in different ear pieces in a head set provides superior two-way communication.

Neither Carme nor Lazarus suggest placing a single ear phone in one ear piece and a single microphone in a second ear piece. The attenuation system of Carme would not work if

there was not both a microphone and ear phone in the same ear piece. Therefore, claims 4 and 21 are patentable over Carme et al. in view of Lazarus et al.

Claim 10 has been amended to specify a filter circuit including an inductor and a capacitor. This filter circuit is not suggested in Carme or Lazarus. Therefore, claim 10 is patentable over Carme et al. in view of Lazarus et al.

Accordingly, applicant requests that the amendments be entered and the application be allowed. If further questions remain, please contact the undersigned.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Box Non-Fee Amendment, Assistant Commissioner for Patents, Washington D.C. 20231 on:

Date: January 11, 2002

Signature _____
Jessica Leitch

VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the claims:

1. [An] A full duplex audio headset, comprising:

a first ear piece having a microphone configured to pickup voice signals of a headset operator output from an ear canal and convert [for converting an audio input] the voice signals into electrical transmit signals and output the electrical transmit signals from the headset as an electrical representation of the voice signals of the headset operator; and

a second ear piece having an ear phone for converting electrical receive signals received from an external device coupled to the audio headset into [an] audio output sounds and outputting the audio output sounds into the same or a different ear canal of the headset operator so that the headset operator can hear the audio output sounds.

2. An audio headset according to claim 1 including an acoustical isolator positioned within the first ear piece for substantially isolating the microphone from audio signals attributed to bone conduction, the acoustical isolator comprising a piece of material extending inside the first earpiece and suspending the microphone inside the first ear piece.

3. An audio headset according to claim 2 wherein the acoustical isolator comprises a foam, paper, plastic, wood, or fiber material [having a substantial air content], the acoustical isolator having sides extending against inside walls of the first earpiece [surrounding sides] and a [back] center portion surrounding sides of the microphone.

4. An audio headset according to claim 1 wherein the first ear piece includes only a single microphone [includes a piezo electric transducer] for locating in an external ear canal in a first ear of a user, [the piezo electric transducer generating the electrical transmit signals from the audio input of the user detected in the external ear canal] the first ear piece containing no other microphones or ear phones and the second ear piece includes only a single ear phone for locating in a second ear of the user, the second ear piece containing no other microphones or ear phones.

5. An audio headset according to claim 1 including a first wire coupled from the

microphone to a first ring connection for outputting the transmit signals, a second wire coupled from the earphone to a second tip connection for receiving the receive signals, and a third wire for coupling the microphone and the earphone to a ground connection.

10. An audio headset according to claim 9 including a filter circuit coupled across the second and third terminals of the transistor for filtering out low audio frequencies from the transmit signals, the filter including an inductor and a capacitor.

12. An audio headset according to claim 1 wherein the first ear piece and the second ear piece each include a housing adapted to insert within an external ear canal of a user, the microphone positioned within [one of the houses] the housing for converting voice signals from the user into the transmit signals.

13. A method for operating a full duplex headset, comprising:

adapting a first ear piece for receiving audio signals from a voice of a user while located within a first ear of the user providing an audio talk source for the user;

converting the received audio signals from the first ear piece into transmit signals for outputting [to] through a first connector as an audio output signal;

adapting a second ear piece for receiving receive signals [from] through a second connector while located within a second ear of the user providing an audio listening source for the user; and

outputting the receive signals through a transducer in the second ear piece into the second ear of the user.

14. A method according to claim 13 including surrounding a foam, paper, plastic, wood, or fiber material about the microphone to acoustically [isolating] isolate a microphone in the first ear piece from audio signals attributed to bone conduction.

16. A method according to claim 13 including:

outputting the transmit signals from a first ring wire in the headset;

receiving the receive signals from a second tip wire in the headset; and

grounding the first ear piece and the second ear piece with a third wire in the headset.

17. A method according to claim 16 including terminating the first, second and third wires with separate terminals on [a plug] an external connector for coupling to audio telephony or recording devices.

21. A method according to claim 13 including:

locating only a single microphone in the first earpiece without providing any other microphones or earphones in the first earpiece;

locating only a single earphone in the second earpiece without providing any other microphones or earphones in the second earpiece;

inserting [housings for] the first and second ear piece into opposite external ear canals of the user; and

positioning the microphone within the [housing] first earpiece for converting voice signals within the inserted external ear canal into the transmit signals.